T. J. McCARTHY.

PRIMING ATTACHMENT FOR CARBURETERS.

APPLICATION FILED MAY 21, 1910.

**995,074.** Patented June 13, 1911.

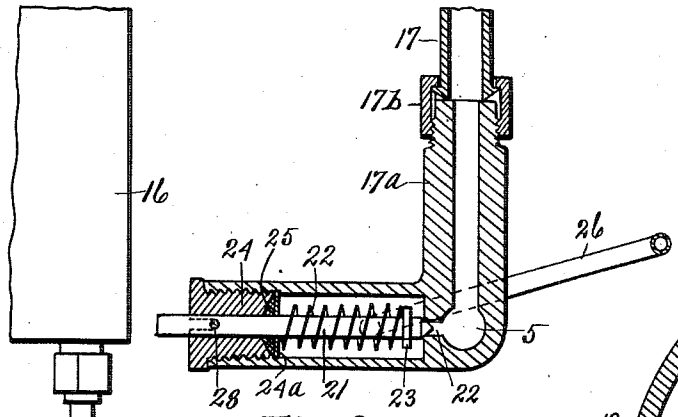


Fig. 2.

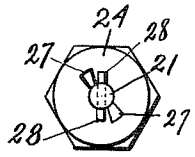


Fig. 3.




Fig. 1.

Witnesses

O. B. Baenziger.

I. G. Howlett.

Inventor

Thomas J. McCarthy.

By E. W. Wheeler Attorney

# UNITED STATES PATENT OFFICE.

THOMAS J. McCARTHY, OF DETROIT, MICHIGAN, ASSIGNOR TO STAR CARBURETOR CO., OF DETROIT, MICHIGAN, A CORPORATION OF DELAWARE.

## PRIMING ATTACHMENT FOR CARBURETERS.

995,074. Specification of Letters Patent. Patented June 13, 1911.

Application filed May 21, 1910. Serial No. 562,580.

*To all whom it may concern:*

Be it known that I, THOMAS J. McCARTHY, a citizen of the United States, residing at Detroit, in the county of Wayne, State of Michigan, have invented certain new and useful Improvements in Priming Attachments for Carbureters; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the characters of reference marked thereon, which form a part of this specification.

This invention relates to a priming attachment for carbureters adapted for use in connection with internal combustion engines, and consists in the construction and arrangements of parts hereinafter more fully set forth and pointed out particularly in the claims.

The object of the invention is to provide simple and efficient means associated with a carbureter, whereby a priming charge of gasolene or other combustible fluid, may be injected into the intake pipe of an explosive engine in proximity to the intake valve, or the opening in the cylinder wall through which the explosive charge is introduced to the cylinder, thereby insuring the introduction into the cylinder of a sufficient quantity of the combustible fluid to enable the engine to be readily started when the temperature is low, or after the engine has remained idle for some time.

The above object is attained by the association and arrangement of parts illustrated in the accompanying drawings, in which—

Figure 1 is a fragmentary view, mostly in section, showing a carbureter connected with the intake pipe of an engine and my improved priming device connected with the carbureter and leading into said intake pipe. Fig. 2 is a detail in horizontal section, as on line 2—2 of Fig. 1. Fig. 3 is an end elevation of a fitting through which passes the stem of the plunger which controls the flow of fuel through the priming tube.

Referring to the characters of reference, 1 designates a fuel reservoir of a carbureter having therein the usual float 2 from which depends a stem 3 having at its lower end a ball valve 4 which lies within the fuel supply chamber 5 and is adapted to seat around the opening 6 leading into said reservoir, whereby the fuel in said reservoir may be maintained at any predetermined level, as will be well understood in the art. Leading from the fuel reservoir of the carbureter is a feed nozzle 7 which extends into the vertical air passage way 8 within the pipe 9. At the upper end of said pipe is the usual throttle 10 actuated through the medium of a lever 11. The intake pipe 12 of the engine is connected with the upper end of the pipe 9 of the carbureter and forms a mixture intake passage 13 leading to the intake port of the cylinder. A valve 14 controls said intake port and is lifted from its seat by the inspirations of the engine, permitting the explosive charges to enter the cylinder 15.

The fuel supply tank 16 is connected to the chamber 5 of the carbureter by a feed pipe 17, which is joined to a fitting $17^a$ by a union $17^b$, said tank being elevated to afford sufficient hydrostatic pressure to insure a forced feeding of the fuel.

Formed integral with the bottom portion of the fuel reservoir 1 of the carbureter is a tubular member 18 having a chamber 19 therein which communicates with the chamber 5 through an opening 20. Within the chamber 19 is a plunger 21 upon which is mounted a coiled spring 22 confined upon said plunger by a collar 23 fast to said plunger at one end, and by a gland 24 which screws into the outer end of the tubular member 18 and engages a washer $24^a$ bearing against the other end of said spring. The outer end of the plunger 21 passes through said gland such distance as to enable an actuating rod, not shown, to be connected therewith. In the inner end of the gland 24 is a stuffing box 25 to prevent the escape of fluid around the plunger 21. The tension of the spring 22 is normally exerted to hold the inner end of the plunger seated over the opening 20, thereby preventing fluid from the chamber 5 entering the chamber 19. Communicating with the chamber 19 is a tube 26, the upper end of which enters the air pipe 9 above the throttle adjacent its point of communication with the intake pipe of the engine.

Formed in the outer end of the gland 24 is a recess 27 adapted to receive the pin 28 passing through the plunger 21. The recess

27 is narrow so that when the plunger is drawn outwardly against the action of the spring 22 and slightly rotated, the pin 28 will engage across said recess and hold the plunger in its retracted position, thereby allowing the fuel from the supply tank to flow through the pipe 17, the chamber 5, and from the chamber 5 into the chamber 19, and thence through the tube 26 into the intake pipe of the engine, into which the fuel will spurt from the mouth of said tube with considerable force, depending upon the degree of elevation of the tank 16. By this arrangement, when the engine is cranked to cause an inspiration, a quantity of the fluid fuel will be carried past the valve 14 into the engine cylinder, insuring the entrance of sufficient fuel to cause an explosion when the temperature is low, or under conditions when the introduction of an explosive charge into the cylinder is extremely difficult, enabling an engine by the use of this device, to be quickly and easily started. Upon releasing the plunger, the spring 22 will return it to its seat, thereby stopping the flow of fuel through the tube 26.

Having thus fully set forth my invention, what I claim as new and desire to secure by Letters Patent, is:—

1. In an internal combustion engine, the combination of a cylinder formed with an intake pipe, a carbureter in communication with the intake pipe, the said carbureter being formed with a float chamber, a fuel supply chamber provided with a fitting having an auxiliary chamber therein which communicates with the fuel supply chamber, a liquid fuel reservoir in communication with the fuel supply chamber and arranged to supply fuel thereto under pressure, a valve automatically controlling communication between the fuel supply chamber and the float chamber of the carbureter, a pipe leading from the auxiliary chamber to the intake pipe of the cylinder, and a second valve controlling communication between the fuel supply chamber and the auxiliary chamber, the said second valve being normally closed and being adapted to be opened when starting the engine to provide a continuous supply of fuel direct from the reservoir to the intake of the cylinder independent of the float chamber of the carbureter.

2. In an internal combustion engine, the combination of a cylinder formed with an intake pipe, a carbureter in communication with the intake pipe, the said carbureter being formed with a float chamber, a fuel supply chamber provided with a fitting having an auxiliary chamber therein which communicates with the fuel supply chamber, a liquid fuel reservoir in communication with the fuel supply chamber and arranged to supply fuel thereto under pressure, a valve automatically controlling communication between the fuel supply chamber and the float chamber of the carbureter, a pipe leading from the auxiliary chamber to the intake pipe of the cylinder, a second valve controlling communication between the fuel supply chamber and the auxiliary chamber, a spring normally holding the second valve in a closed position, and means for opening the said second valve when starting the engine to provide a continuous supply of fuel direct from the reservoir to the intake of the cylinder independent of the float chamber of the carbureter.

3. In an internal combustion engine, the combination of a cylinder formed with an intake pipe, a carbureter in communication with the intake pipe, the said carbureter being provided with a float chamber, a fuel supply chamber and with a fitting having an auxiliary chamber therein which communicates with one side of the fuel supply chamber, a gland closing the outer end of the auxiliary chamber, a pipe leading from the auxiliary chamber to the intake of the cylinder, a liquid fuel reservoir arranged to supply fuel under pressure to the fuel supply chamber, a valve automatically controlling communication between the fuel supply chamber and the float chamber of the carbureter, a second valve controlling communication between the fuel supply chamber and the auxiliary chamber, the said valve being formed with a stem which projects through the gland and constitutes a means for opening the valve, and a spring normally tending to close the valve, the said valve remaining closed while the engine is in operation and being adapted to be opened when starting the engine to provide a continuous supply of fuel from the reservoir to the intake of the cylinder.

In testimony whereof, I sign this specification in the presence of two witnesses.

THOMAS J. McCARTHY.

Witnesses:

FREDERICK McNAUGHTON,

WM. GRUNST.